Understand Your Design!

Costs

Quality

Time

Contractual Penalty

Technological Improvement

Prototypes

Material Costs

Premium Quality

As Soon As Possible

First Class Products

Optimization

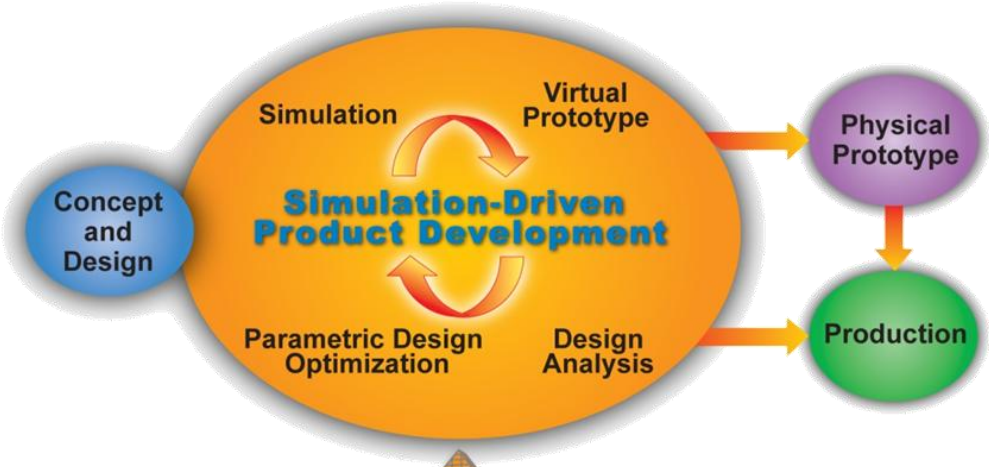
Six Sigma

Development Time

Dead Line

CADFEM

The Role of Simulation in Development



„Understand, optimize and innovate your design before it is build“

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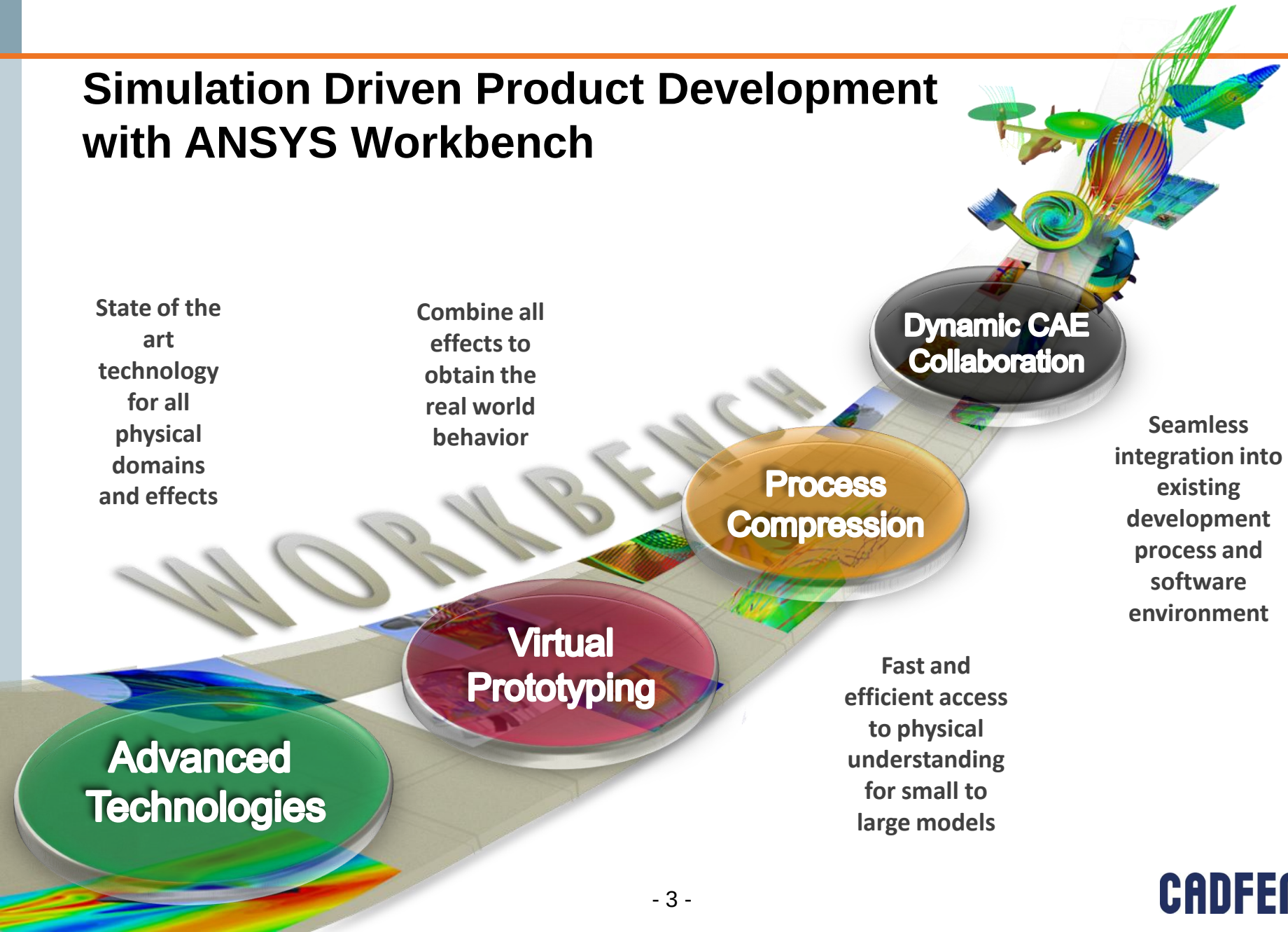
Simulation Driven Product Development with ANSYS Workbench



State of the art technology for all physical domains and effects

Combine all effects to obtain the real world behavior

Fast and efficient access to physical understanding for small to large models

Seamless integration into existing development process and software environment

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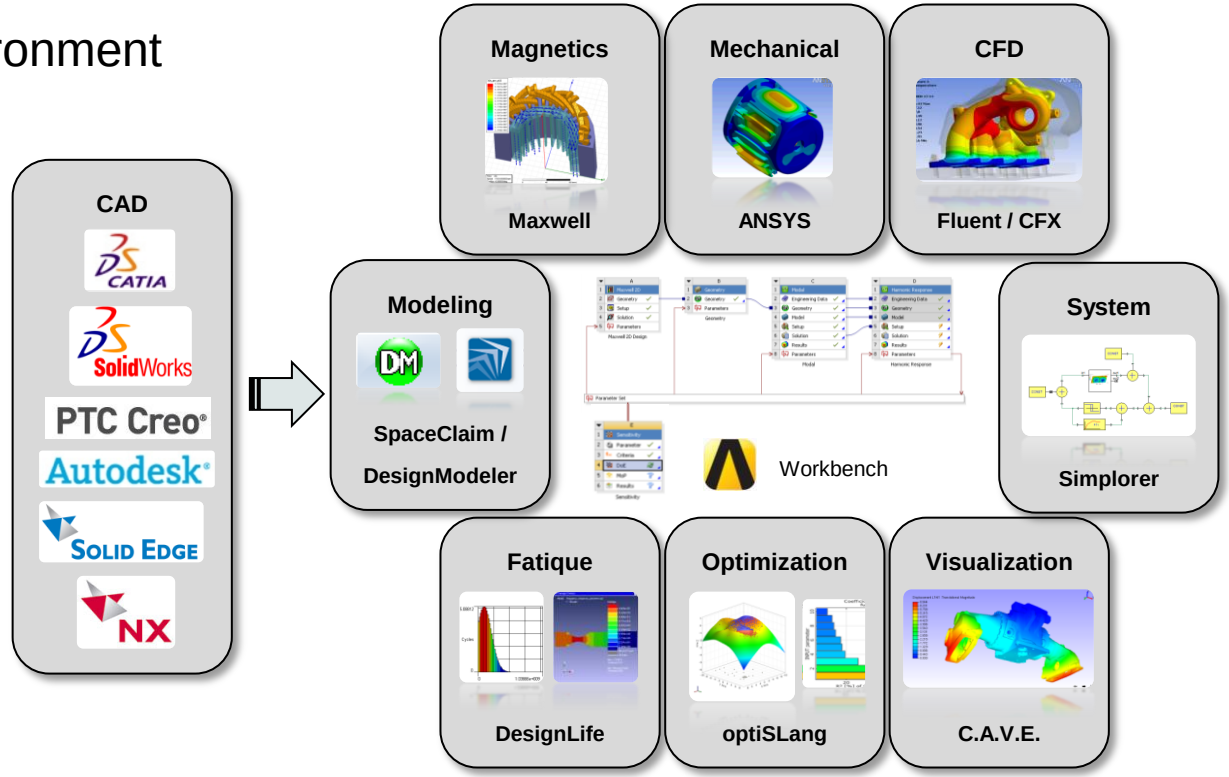
Dynamic CAE Collaboration with ANSYS Workbench

- Seamless integration into the development process
- All tasks within one environment
  - Design
  - Simulation
  - Integration
  - Evaluation
- Parametric interaction through the whole process



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Understand Your Design!

Design
Part Assembly
Brake Pressure
Friction
Material
Manufacturing

Which one is most important?
Is a larger value better or a smaller value?

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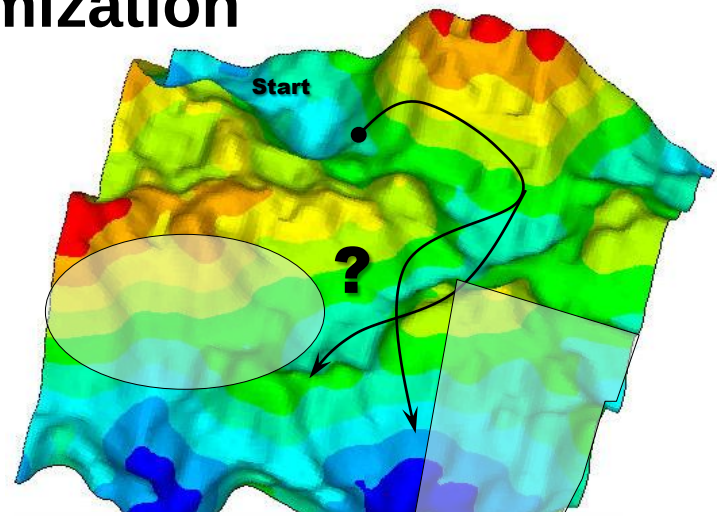
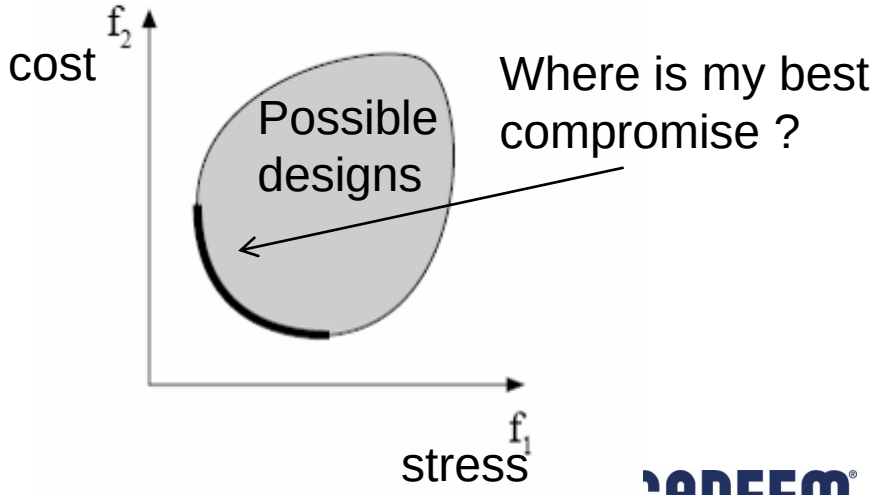
Design Improvement and Optimization

- Define your design goals
- Insert constraints to fulfill additional conditions
- Improve conflicting properties
  - Find a compromise for two (or even more) different requirements.
  - „Classical“ example: minimize the volume (costs) and stress ensuring the performance
- Automated selection of best-in-class optimization technologies
  - Gradient based
  - Nature inspired algorithms





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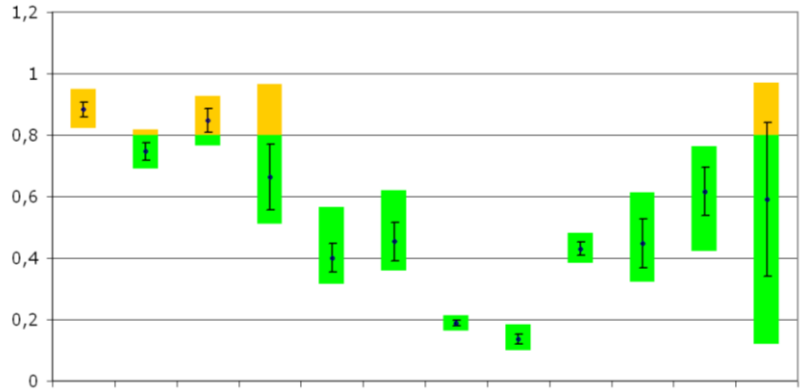
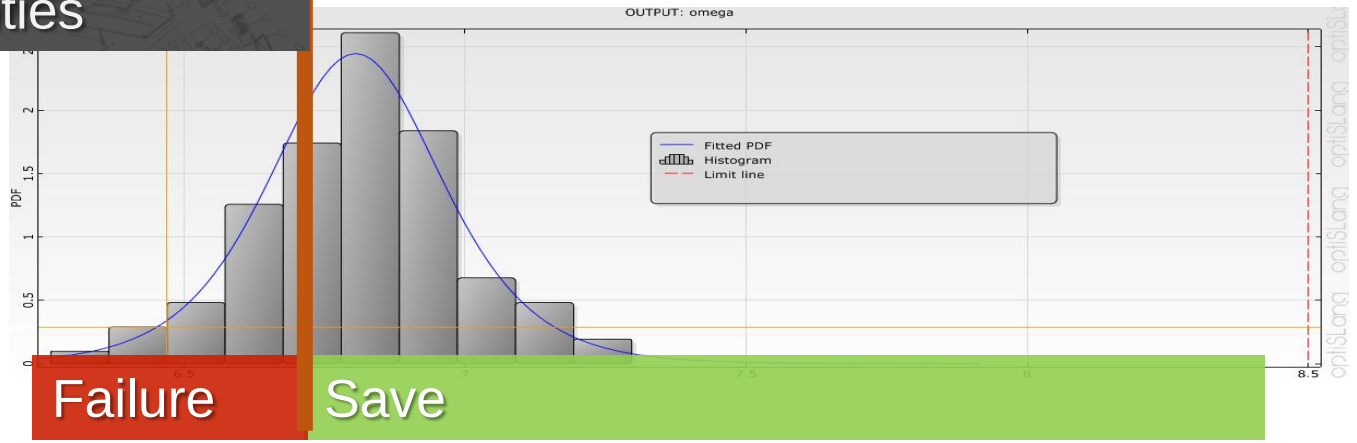
Dealing with Tolerances





- How does my product react when tolerances occur?
- How safe is my product?

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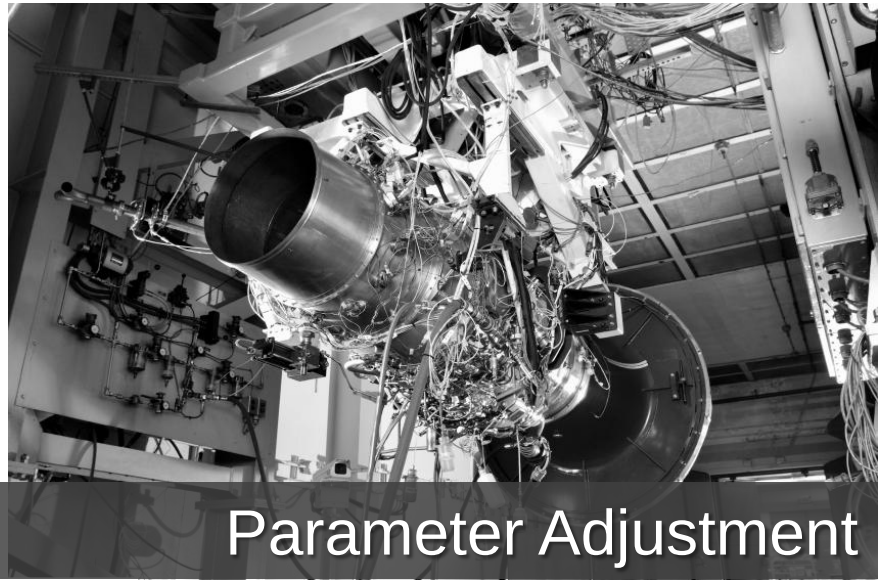
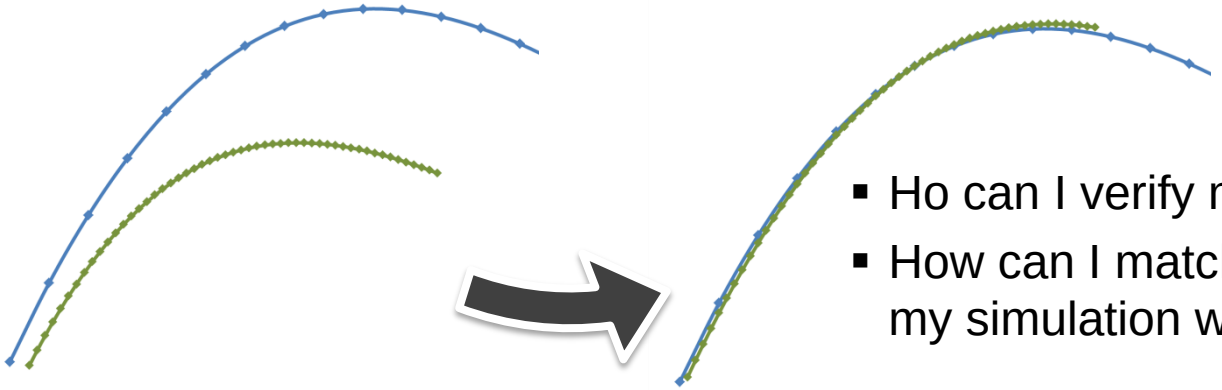
Matching Simulation and Test





- Ho can I verify my simulation with tests?
- How can I match the result of my simulation with tests?

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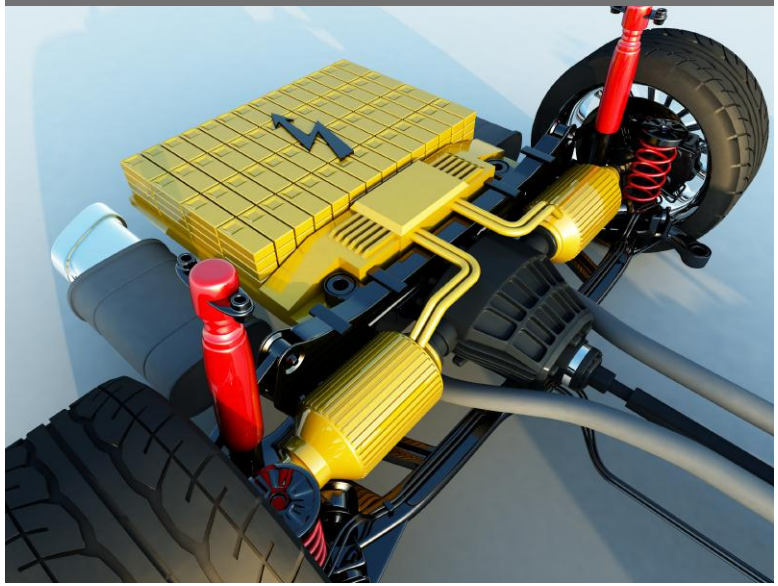
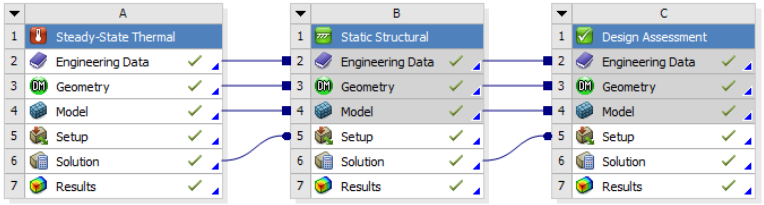
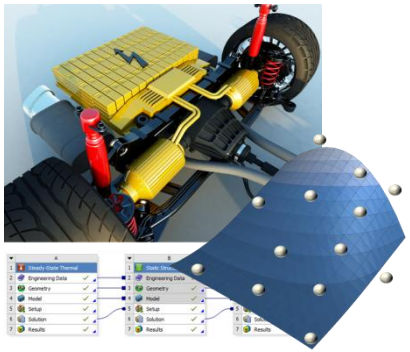
Component Characterization for System Simulation

Component Behavior





INPUT



OUTPUT

Behavior Model

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ANSYS Workbench - Breath and Depth in Simulation

Parameteric simulations

- CAD parameters
- Physics parameters

Direct access to CAD data

- Bi-directional associativity
- Major CAD systems and file formats are supported

Powerful Meshing

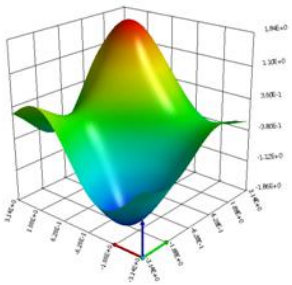
- Physics-based
- Intelligent
- Robust
- Automated

Efficient to use

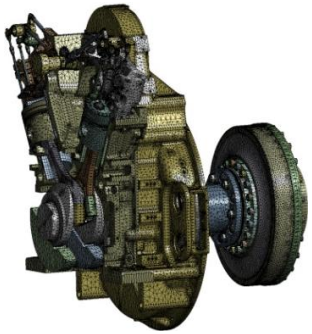
- Automatization
- Customizing
- Flexibility
- Solver Performance
- Data Management

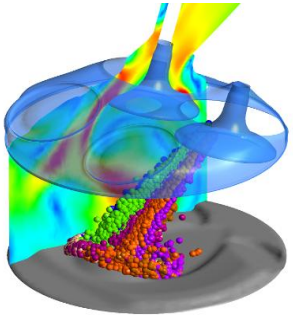
Multiphysics platform

- Structural
- CFD
- Thermal
- Electro-magnetics
- System simulation



PTC Pro/ENGINEER
Autodesk Solid Edge
CATIA NX
SolidWorks Mentor Graphics
cadence





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optiSLang - Systematic Understanding

- Sensitivity
  - What are the most important design variables?
  - Is there a correlation between parameters?
  - What is the range of results?
- Optimization
  - How to find the best result
  - Handle conflicting goals
  - Correlation of simulation and test
- Robust Design
  - Consider scatter in input
- Behavior models
  - Fast answers for changing inputs
  - Verified and optimized accuracy

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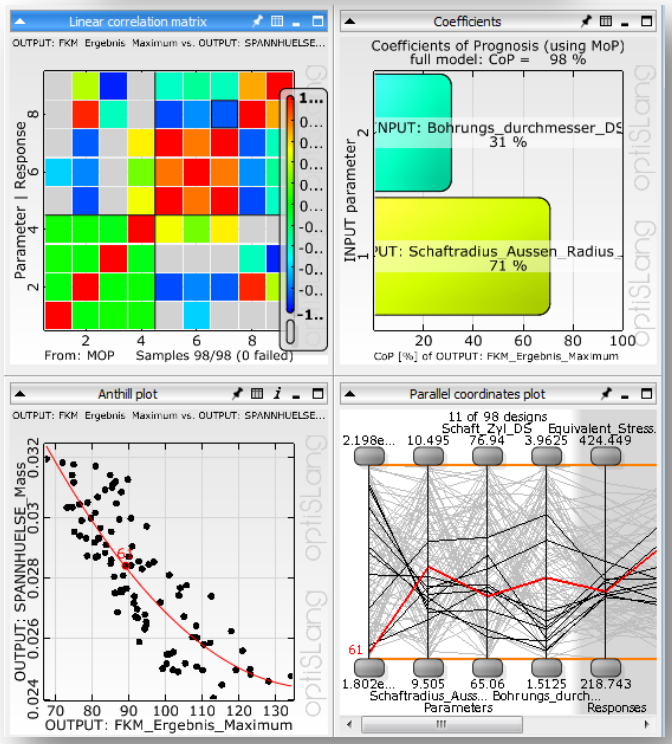

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Products

- Full scale CAE solution based on ANSYS, complementary software and IT infrastructure

ANSYS Competence Center FEM

  - ANSYS Software
  - Complementary Software
  - Hardware
  - IT infrastructure

Service

- Create confidence and reliability in optimized product development by simulation driven engineering

  - Simulation-to-order
  - Customer support
  - Training & deployment
  - Customization & Automation

Knowledge

- Comprehensive and innovative background knowledge for users, supervisors and officers

  - Qualification
  - Exchange of experiences
  - Networking
  - CAE media

CADFEM

CADFEM – at a glance

Products

- Full scale CAE solution based on ANSYS, complementary software and IT infrastructure

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- Create confidence and reliability in optimized product development by simulation driven engineering

Knowledge

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…. powered by

- a company, dedicated since 1985 to CAE,
- more than 100 CAE engineers,
- in 12 locations in Germany, Austria and Switzerland

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